Attorney's Docket No.: 06897-006001

Applicant: Long Y. Chiang Serial No.: 09/840,322 Filed: April 23, 2001 Page: 2 of 13

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of inhibiting the growth of tumor cells in a tumor site in a subject, comprising administering to the tumor site an effective amount of an oligoaniline having the following formula:

$$W = \left(\begin{array}{c} A \\ N \end{array} \right) \left(\begin{array}{c} X \\ N \end{array} \right) \left(\begin{array}{c}$$

wherein

m is an integer of 1-6; n is an integer of 1-10;

each A is -Z, -CH₂-CO-OH, -CH₂-CO-O-Z, -CH₂-CO-S-Z, or -CH₂-CO-NH-Z; and each X is -H, -O-Z, -S-Z, -NH-Z; Z being -E-D, wherein E is -R-, -R-Ar-, -Ar-R-, or -Ar-; and D is -OH, -NH₂, -NHOH, -SO₃H, -OSO₃H, -CO₂H, -CH(NH₂)-CO₂H, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, -NH₃+, -N+H₂R_b, -N+H₂R_b, or -N+R_bR_cR_d, each of R, R_b, R_c, and R_d, independently, being C₁₋₃₀ alkyl; and Ar being aryl;

W is -H, -CO-B, -CH₂CH(OH)-B, -CO-NH-B, -CS-NH-B, -CO-O-B, -CO-CH₂-CH(CO₂H)-B, -CH₂-B, -SO₂-B, wherein B is -R₁-O-[Si(CH₃)₂-O-]₁₋₁₀₀, C_{1-2000} alkyl, C_{6-40} aryl, C_{7-60} alkylaryl, C_{7-60} arylalkyl, (C_{1-30} alkyl ether)₁₋₁₀₀, (C_{6-40} aryl ether)₁₋₁₀₀, (C_{7-60} alkylaryl ether)₁₋₁₀₀, (C_{7-60} arylalkyl ether)₁₋₁₀₀, (C_{1-30} alkyl thioether)₁₋₁₀₀, (C_{6-40} aryl thioether)₁₋₁₀₀, (C_{7-60} arylalkyl thioether)₁₋₁₀₀, (C_{7-60} arylalkyl ester)₁₋₁₀₀, (C_{8-70} arylalkyl ester)₁₋₁₀₀, -R₁-CO-O-(C_{1-30} alkyl ether)₁₋₁₀₀, -R₁-CO-O-(C_{7-60} arylalkyl ether)₁₋₁₀₀, -R₁-CO-O-(C_{7-60} arylalkyl ether)₁₋₁₀₀, (C_{1-30} alkyl urethane)₁₋₁₀₀, (C_{1-30} alkyl urethane)₁₋₁₀₀,

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 $(C_{10-80} \text{ arylalkyl urethane})_{1-100}, (C_{5-50} \text{ alkyl urea})_{1-100}, (C_{14-60} \text{ aryl urea})_{1-100}, (C_{10-80} \text{ alkylaryl})_{1-100}$ urea)₁₋₁₀₀, $(C_{10-80} \text{ arylalkyl urea})_{1-100}$, $(C_{2-50} \text{ alkyl amide})_{1-100}$, $(C_{7-60} \text{ aryl amide})_{1-100}$, $(C_{8-70} \text{ arylalkyl urea})_{1-100}$ alkylaryl amide)₁₋₁₀₀, $(C_{8-70} \text{ arylalkyl amide})_{1-100}$, $(C_{3-30} \text{ alkyl anhydride})_{1-100}$, $(C_{8-50} \text{ arylalkyl amide})_{1-100}$ anhydride)₁₋₁₀₀, $(C_{9-60} \text{ alkylaryl anhydride})_{1-100}$, $(C_{9-60} \text{ arylalkyl anhydride})_{1-100}$, $(C_{2-30} \text{ alkylaryl anhydride})_{1-100}$ carbonate)₁₋₁₀₀, $(C_{7-50} \text{ aryl carbonate})_{1-100}$, $(C_{8-60} \text{ alkylaryl carbonate})_{1-100}$, $(C_{8-60} \text{ arylalkyl})_{1-100}$ carbonate)₁₋₁₀₀, $-R_1$ -O-CO-NH-(R_2 or Ar- R_2 -Ar)-NH-CO-O-(C_{1-30} alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether)₁₋₁₀₀, $-R_1$ -O-CO-NH-(R_2 or Ar- R_2 -Ar)-NH-CO-O- $(C_{2-50} \text{ alkyl ester}, C_{7-60} \text{ aryl ester}, C_{8-70} \text{ alkylaryl ester}, \text{ or } C_{8-70} \text{ arylalkyl ester})_{1-100}, -R_1-O-CO-$ NH-(R_2 or Ar- R_2 -Ar)-NH-CO-O-(C_{1-30} alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether)₁₋₁₀₀-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O- $(C_{2-50}$ alkyl ester, C_{7-60} aryl ester, C_{8-70} alkylaryl ester, or C_{8-70} arylalkyl ester)₁₋₁₀₀-R₃-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₁₋₃₀ alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether) $_{1-100}$, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-(C_{2-50} alkyl ester, C_{7-60} aryl ester, C_{8-70} alkylaryl ester, or C_{8-70} arylalkyl ester)₁₋₁₀₀, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₁₋₃₀ alkyl ether, C₆₋₄₀ aryl ether, C₇₋₆₀ alkylaryl ether, or C₇₋₆₀ arylalkyl ether)₁₋₁₀₀-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₂₋₅₀ alkyl ester, C₇₋₆₀ aryl ester, C₈₋₇₀ alkylaryl ester, or C₈₋₇₀ arylalkyl ester)₁₋₁₀₀-R₃O-CO-NH-(R₂ or Ar--R₂-Ar)-NH-CO-O-, -R₁-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-NH-(C_{2-50} alkyl amide, C_{7-60} aryl amide, C_{8-70} alkylaryl amide, or C_{8-70} arylalkyl amide)₁₋₁₀₀, or -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-NH-(C₂₋₅₀ alkyl amide, C₇₋₆₀ aryl amide, C₈₋₇₀ alkylaryl amide, or C₈₋₇₀ arylalkyl amide)₁₋₁₀₀; wherein each of R₁, R₂, and R₃, independently, is C_{1-30} alkyl; and Ar is aryl; and

K is -H, -[N(X)-C₆H₄]₁₋₃-NH₂, -[N(X)-C₆H₄]₁₋₃-NH-C(=S)-SH, -[N(X)-C₆H₄]₁₋₃-N=CH-Ar-SH, or -[N(X)-C₆H₄]₁₋₃-NH-CO-Ar-SH, wherein X is -H, -Z, -CH₂-CO-OH, -CH₂-CO-O-Z, -CH₂-CO-S-Z, -CH₂-CO-NH₂ or -CH₂-CO-NH-Z; and Ar is aryl; and subsequently exposing the tumor site to irradiation.

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2. (Original) The method of claim 1, wherein A is -Z, -CH₂-CO-O-Z, -CH₂-CO-S-Z, or -CH₂-CO-NH-Z; wherein E is -R- or -R-Ar-; and D is -OH, -SH, -NH₂, -NHOH, -SO₃H, -OSO₃H, -CO₂H, -CONH₂, -CH(NH₂)-CO₂H, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)-O-PO(OH)₂, or -NH₃⁺.

- 3. (Original) The method of claim 1, wherein m is an integer of 2-6.
- 4. (Original) The method of claim 1, wherein n is an integer of 1-6.
- 5. (Original) The method of claim 2, wherein A is -Z, Z being -E-D, wherein E is -R-, or -R-Ar-; and D is -OH, -SH, -NH₂, -NHOH, -SO₃H, -OSO₃H, -CO₂H, -CONH₂, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₋O-PO(OH)₂, or -NH₃⁺.
 - 6. (Original) The method of claim 2, wherein n is an integer of 1-6.
 - 7. (Original) The method of claim 2, wherein m is an integer of 2-6.
 - 8. (Original) The method of claim 6, wherein m is an integer of 2-6.
- 9. (Original) The method of claim 5, wherein E is -R-; and D is -SO₃H, -OSO₃H, -CO₂H, -O-PO(OH)₂, or -O-PO(OH)-O-PO(OH)₂.
 - 10. (Original) The method of claim 5, wherein m is an integer of 2-6.
 - 11. (Original) The method of claim 5, wherein n is an integer of 1-6.
- 12. (Original) The method of claim 9, wherein E is $-C_3H_6$ -; D is $-SO_3H$; n is an integer of 1-6; and m is an integer of 2-6.
 - 13. (Original) The method of claim 12, wherein m is 4.

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14. (Original) The method of claim 13, wherein each of W, X, and K is H.

- 15. (Original) The method of claim 3, wherein m is 4.
- 16. (Original) The method of claim 3, wherein n is an integer of 1-6.
- 17. (Original) The method of claim 15, wherein n is an integer of 1-6.
- 18. (Currently Amended) A pharmaceutical composition for inhibiting the growth of tumor cells, comprising a compound of the following formula:

$$W = \begin{bmatrix} A \\ N \end{bmatrix} \begin{bmatrix} X \\ M \end{bmatrix}$$

wherein

m is an integer of 2-6;

n is an integer of 1-10;

each A is -H, -Z, -CH₂-CO-OH, -CH₂-CO-O-Z, -CH₂-CO-S-Z, -CH₂-CO-NH₂, or -CH₂-CO-NH-Z; and each X is -H, -O-Z, -S-Z, -NH-Z; Z being -E-D, wherein E is -R-, -R-Ar-, -Ar-R-, or -Ar-; and D is -OH, -SH, -NH₂, -NHOH, -SO₃H, -OSO₃H, -CO₂H, -CONH₂, -CH(NH₂)-CO₂H, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)-O-PO(OH)₂, -O-PO(O⁻)-O-CH₂CH₂NH₃⁺, -glycoside, -OCH₃, -OCH₂(CHOH)₄-CH₂OH, -OCH₂(CHOH)₂-CH₂OH, -C₆H₃(OH)₂, -NH₃⁺, -N⁺H₂R_b, -N⁺HR_bR_c, or -N⁺R_bR_cR_d, each of R, R_b, R_c, and R_d, independently, being C₁₋₃₀ alkyl; and Ar being aryl;

W is -H, -CO-B, -CH₂CH(OH)-B, -CO-NH-B, -CS-NH-B, -CO-O-B, -CO-CH₂-CH(CO₂H)-B, -CH₂-B, -SO₂-B, wherein B is -R₁-O-[Si(CH₃)₂-O-]₁₋₁₀₀, C₁₋₂₀₀₀ alkyl, C₆₋₄₀ aryl, C₇₋₆₀ alkylaryl, C₇₋₆₀ arylalkyl, (C₁₋₃₀ alkyl ether)₁₋₁₀₀, (C₆₋₄₀ aryl ether)₁₋₁₀₀, (C₇₋₆₀ alkylaryl ether)₁₋₁₀₀, (C₇₋₆₀ arylalkyl ether)₁₋₁₀₀, (C₁₋₃₀ alkyl thioether)₁₋₁₀₀, (C₆₋₄₀ aryl thioether)₁₋₁₀₀, (C₇₋₆₀ arylalkyl thioether)₁₋₁₀₀, (C₂₋₅₀ alkyl ester)₁₋₁₀₀, (C₇₋₆₀ aryl ester)₁₋₁₀₀, (C₈₋₇₀ alkylaryl ester)₁₋₁₀₀, (C₈₋₇₀ arylalkyl ester)₁₋₁₀₀, -R₁-CO-O-(C₁₋₃₀ alkyl ether)₁₋₁₀₀,

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 $-R_1$ -CO-O- $(C_{6-40}$ aryl ether)₁₋₁₀₀, $-R_1$ -CO-O- $(C_{7-60}$ alkylaryl ether)₁₋₁₀₀, $-R_1$ -CO-O- $(C_{7-60}$ arylalkyl ether)₁₋₁₀₀, $(C_{4-50} \text{ alkyl urethane})_{1-100}$, $(C_{14-60} \text{ aryl urethane})_{1-100}$, $(C_{10-80} \text{ alkylaryl urethane})_{1-100}$, $(C_{10-80} \text{ arylalkyl urethane})_{1-100}$, $(C_{5-50} \text{ alkyl urea})_{1-100}$, $(C_{14-60} \text{ aryl urea})_{1-100}$, $(C_{10-80} \text{ alkylaryl})_{1-100}$ urea)₁₋₁₀₀, $(C_{10-80} \text{ arylalkyl urea})_{1-100}$, $(C_{2-50} \text{ alkyl amide})_{1-100}$, $(C_{7-60} \text{ aryl amide})_{1-100}$, $(C_{8-70} \text{ arylalkyl urea})_{1-100}$ alkylaryl amide)₁₋₁₀₀, $(C_{8-70} \text{ arylalkyl amide})_{1-100}$, $(C_{3-30} \text{ alkyl anhydride})_{1-100}$, $(C_{8-50} \text{ arylalkyl amide})_{1-100}$ anhydride)₁₋₁₀₀, $(C_{9-60}$ alkylaryl anhydride)₁₋₁₀₀, $(C_{9-60}$ arylalkyl anhydride)₁₋₁₀₀, $(C_{2-30}$ alkyl carbonate)₁₋₁₀₀, $(C_{7-50} \text{ aryl carbonate})_{1-100}$, $(C_{8-60} \text{ alkylaryl carbonate})_{1-100}$, $(C_{8-60} \text{ arylalkyl})_{1-100}$ carbonate)₁₋₁₀₀, -R₁-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C_{1-30} alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether)₁₋₁₀₀, $-R_1$ -O-CO-NH-(R_2 or Ar- R_2 -Ar)-NH-CO-O- $(C_{2-50} \text{ alkyl ester}, C_{7-60} \text{ aryl ester}, C_{8-70} \text{ alkylaryl ester}, \text{ or } C_{8-70} \text{ arylalkyl ester})_{1-100}, -R_1-O-CO-$ NH-(R_2 or Ar- R_2 -Ar)-NH-CO-O-(C_{1-30} alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether)₁₋₁₀₀-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C_{2-50} alkyl ester, C_{7-60} aryl ester, C_{8-70} alkylaryl ester, or C_{8-70} arylalkyl ester)₁₋₁₀₀-R₃-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₁₋₃₀ alkyl ether, C_{6-40} aryl ether, C_{7-60} alkylaryl ether, or C_{7-60} arylalkyl ether)₁₋₁₀₀, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-(C_{2-50} alkyl ester, C_{7-60} aryl ester, C_{8-70} alkylaryl ester, or C_{8-70} arylalkyl ester)₁₋₁₀₀, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₁₋₃₀ alkyl ether, C₆₋₄₀ aryl ether, C₇₋₆₀ alkylaryl ether, or C₇₋₆₀ arylalkyl ether)₁₋₁₀₀-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-NH-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-(C₂₋₅₀ alkyl ester, C₇₋₆₀ aryl ester, C₈₋₇₀ alkylaryl ester, or C₈₋₇₀ arylalkyl ester)₁₋₁₀₀-R₃O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-O-, -R₁-O-CO-NH-(R₂ or Ar-R₂-Ar)-NH-CO-NH-(C_{2-50} alkyl amide, C_{7-60} aryl amide, C_{8-70} alkylaryl amide, or C_{8-70} arylalkyl amide)₁₋₁₀₀, or $-R_1$ -NH-CO-NH-(R_2 or Ar- R_2 -Ar)-NH-CO-NH-(C_{2-50} alkyl amide, C_{7-60} aryl amide, C_{8-70} alkylaryl amide, or C_{8-70} arylalkyl amide)₁₋₁₀₀; wherein each of R_1 , R_2 , and R_3 , independently, is C_{1-30} alkyl; and Ar is aryl; and

K is -H, -[N(X)-C₆H₄]₁₋₃-NH₂, -[N(X)-C₆H₄]₁₋₃-NH-C(=S)-SH, -[N(X)-C₆H₄]₁₋₃-N=CH-Ar-SH, or -[N(X)-C₆H₄]₁₋₃-NH-CO-Ar-SH, wherein X is -H, -Z, -CH₂-CO-OH, -CH₂-CO-O-Z, -CH₂-CO-S-Z, -CH₂-CO-NH₂ or -CH₂-CO-NH-Z; and Ar is aryl; and a pharmaceutically acceptable carrier.

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19. (Original) The pharmaceutical composition of claim 18, wherein A is -Z, -CH₂-CO-O-Z, -CH₂-CO-S-Z, or -CH₂-CO-NH-Z; E is -R- or -R-Ar-; and D is -OH, -SH, -NH₂, -NHOH, -SO₃H, -OSO₃H, -CO₂H, -CONH₂, -CH(NH₂)-CO₂H, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₂, -O-PO(OH)₂, or -NH₃⁺.

- 20. (Original) The pharmaceutical composition of claim 19, wherein A is -Z; E is -R-; and D is -SO₃H, -OSO₃H, -CO₂H, -CH(NH₂)-CO₂H, -P(OH)₃, -PO(OH)₂, -O-PO(OH)₂, or -O-PO(OH)-O-PO(OH)₂.
- 21. (Original) The pharmaceutical composition of claim 20, wherein E is $-C_3H_6$ -; D is $-SO_3H$; n is an integer of 1-6; m is an integer of 2-6; and each of W, X, and K is H.